Affirming Both Independent and Interdependent Values Improves Achievement for All Students and Mitigates Cultural Mismatch for First-Generation College Students

Cameron A. Hecht[1]

Stacy J. Priniski[2]

Yoi Tibbetts[3]

Judith M. Harackiewicz[1]

[1]University of Wisconsin-Madison

[2]Michigan State University

[3]University of Virginia

Cameron A. Hecht, Population Research Center, University of Texas at Austin; Stacy J. Priniski, Department of Counseling, Educational Psychology, and Special Education, Michigan State University; Yoi Tibbetts, Curry School of Education, University of Virginia; Judith M. Harackiewicz, Department of Psychology, University of Wisconsin-Madison

This research was supported by National Institutes of Health Grant R01GM102703. Cameron A. Hecht, Stacy J. Priniski, and Yoi Tibbetts were all supported by grants from the Institute of Educational Sciences, U.S. Department of Education, through Award R305B090009 and R305B150003 to the University of Wisconsin-Madison. Cameron A. Hecht was also supported by the National Science Foundation Postdoctoral Research Fellowship under grant number 2004831. Stacy J. Priniski was also supported by the National Academy of Education/ Spencer Dissertation Fellowship.

Citation

Hecht, C. A., Priniski, S. J., Tibbetts, Y., & Harackiewicz, J. M. (2021). Affirming both independent and interdependent values improves achievement for all students and mitigates cultural mismatch for first-generation college students. Journal of Social Issues, 77(3), 851–887. https://doi.org/10.1111/josi.12416

Abstract

Many first-generation college students – whose parents have not obtained a four-year college degree – experience a "cultural mismatch" due to a lack of alignment between the independent values of their university (consistent with the culture of higher education) and their own interdependent values (consistent with working-class culture). We documented this mismatch at a four-year university (n = 465), and then tested a values-affirmation intervention in a laboratory study (n = 220) that encouraged students to affirm both independent values *and* interdependent values. We compared this intervention, which had not previously been tested in a four-year university, to a standard values-affirmation intervention and control. This intervention increased first-generation students' perceptions of cultural match and improved achievement on a math test for all students, on average, by increasing confidence and reducing distraction on the test. Encouraging students to integrate independent and interdependent values may improve first-generation college students' experiences in higher education.

Keywords: social class, education, culture

Affirming Both Independent and Interdependent Values Mitigates Cultural Mismatch and Improves Achievement for First-Generation College Students

College-educated individuals earn salaries that are over 95% higher, on average, than those of their high-school-educated peers (Autor, 2014). College may therefore serve as a socioeconomic equalizer for first-generation (FG) college students, for whom neither parent has a four-year college degree. However, FG students face substantial barriers to post-secondary success and tend to perform more poorly than their continuing-generation (CG) peers, for whom at least one parent has a four-year degree (Sirin, 2005). Many barriers are structural: compared to CG students, FG students are more likely to come from low-income households, attend less academically-rigorous high schools, and receive less parental guidance for navigating college (Reardon, 2011; Saenz et al., 2007; Terenzini et al., 1996; Warburton et al., 2001). Other barriers are psychological: FG students tend to experience university settings as less welcoming and more stressful than their CG peers, resulting in uncertainty about belonging in college and impaired academic success (Harackiewicz et al., 2014; Ostrove & Long, 2007; Stephens, Townsend et al., 2012).

Whereas policy-level initiatives such as financial aid may be necessary to address structural barriers, brief student-level interventions can address psychological barriers by altering the ways students experience their environments (Harackiewicz & Priniski, 2018; Walton & Wilson, 2018). One approach – the values-affirmation (VA) intervention – has been found to improve performance and relieve concerns about academic belonging among FG students in four-year universities (e.g., Harackiewicz et al., 2014). In the present research, we document the theorized cause of social identity threat for FG students in four-year universities – perceptions of "cultural mismatch" (Study 1) – and modify a VA intervention to target this process more

directly and improve outcomes for FG students (Study 2).

Social Identity Threat and Cultural Mismatch

Individuals experience social identity threat when their group is culturally marginalized or conferred relatively low status in a particular context (Branscombe & Ellemers, 1998; Steele et al., 2002). In such contexts, individuals are confronted with the possibility that they may be devalued as a function of their identity. The most commonly-studied form of social identity threat is stereotype threat, in which individuals experience concern about confirming negative stereotypes about their group on a performance task and consequently perform below their abilities (Johns et al., 2008; Steele, 2010). However, other types of social identity threat exert an influence in university settings as well. Beyond the usual stress associated with the transition to college (Arnett, 2001; Sy et al., 2011), students can also be subject to social identity threat when they enter universities in which their cultural values are de-emphasized.

Whereas norms of independence pervade most four-year universities within the United States, many students who enter these institutions come from cultural backgrounds in which interdependence is also important. For example, interdependent practices and ideas (such as the importance of family and community) are an important element of everyday life for many African Americans and individuals from working-class backgrounds. The emphasis of universities on independence (and de-emphasis of interdependence) has been highlighted as a psychological barrier for both of these groups, affecting their experiences and academic outcomes in college (Brannon et al., 2015; Stephens, et al., 2014).

In the case of FG students, Stephens, Fryberg, and colleagues found that four-year university administrators tended to emphasize the value of independent skills (e.g., solving problems on one's own) more than interdependent skills (e.g., working together with others). CG

students tended to express motives for attending college that aligned with these universities' independent values. They expressed a greater number of independent motives (e.g., becoming an independent thinker) than interdependent motives (e.g., giving back to their community). Compared to CG students, FG students expressed more interdependent and fewer independent motives for attending college. Previous research shows evidence of bias against working-class individuals in academic institutions, suggesting that students from working-class backgrounds are at risk of being devalued in these settings (Autin et al., 2019; Batruch et al., 2017). Stephens, Fryberg, and colleagues' (2012) research suggests that one facet of this devaluation is a de-emphasis of interdependent values. Universities' rigid emphasis on independence may devalue the interdependent cultural experience of FG students, creating a social identity threat.

This "cultural mismatch" is consequential for FG students' experiences on university campuses. FG students report experiencing universities' emphasis on independence as more stressful and challenging than CG students (Stephens, Townsend, et al., 2012). In addition, the experience of social identity threat prompts students to be vigilant to potential cues of devaluation and discrimination, which can cause distraction and self-doubt, thereby undermining performance (Cohen & Sherman, 2014; Steele & Aronson, 1995; Steele, 1997). Indeed, Stephens, Fryberg, and colleagues (2012) found that FG students' mismatch with university norms (i.e., their tendency to more strongly endorse interdependent – as opposed to independent – motives) partially explained their lower academic performance in college relative to CG students. In addition, they found that framing the university as more interdependent improved performance on an academic task for FG students. Taken together, these findings highlight the experience of cultural mismatch as an important psychological barrier to FG students' success in college.

Values Affirmation

When students experience social identity threat in an academic situation, cognitive resources can be directed away from the task at hand, causing distraction and reduced confidence, leading to suboptimal performance (Steele, 1997; Cohen & Sherman, 2014). Such cognitive depletion effects have been documented among a number of potentially-threatened groups, such as women taking a math test (Spencer et al., 1999) and Black students taking an intelligence test (Steele & Aronson, 1995). The VA intervention was developed to bolster students' self-worth in the face of such threat (Cohen et al., 2006). The VA intervention prompts students to select personally-important values from a list (e.g., independence, relationships with friends and family) and describe why those core values are important to them in a brief writing assignment. Such reflection is thought to remind students that there are many important components of their identity and signal that poor performance on an academic task cannot singlehandedly undermine their personal integrity. This reminder shields the individual's self-worth and allows cognitive resources to be directed back to the academic task, which reduces distraction, increases confidence, and thereby improves performance (see McQueen & Klein, 2006; Cohen & Sherman, 2014, for reviews).

The VA intervention has been found to improve academic performance for many groups of underrepresented students in domains in which they may face social identity threat. For instance, VA was found to improve performance for Black middle-school students (Borman et al., 2016; Cohen et al., 2006, 2009; Cook et al., 2012; Dee, 2015; Hanselman et al., 2014), Latinx middle-school students (Borman et al., 2016; Brady et al., 2016; Hanselman et al., 2014), and women in a college physics course (Miyake et al., 2010). Importantly, such effects have also been found among FG students. Harackiewicz and colleagues (2014) found that a VA

intervention reduced the gap between CG and FG students' grades in an introductory biology course by about 50%, and this intervention effect persisted, in terms of higher grade point averages (GPAs) over the course of three years (Tibbetts et al., 2016).

Tibbetts and colleagues (2016) explored mechanisms by which VA may have improved academic performance for FG students. The researchers suggested that although FG students hold relatively fewer independent motives than CG students in certain contexts (e.g., elite four-year institutions), reflecting on the independent motives they *do* hold may alleviate the social identity threat they experience as a result of cultural mismatch. The researchers coded the degree to which students reflected on independent and interdependent values in their VA essays and found that reflection on independent values was more positively associated with academic performance for FG students than CG students. In fact, writing about independent values mediated the effect of the VA intervention on GPA for FG students.

The researchers followed up on this finding by manipulating the content of students' writing in a laboratory experiment. Participants were brought into a potentially-threatening academic situation in which they were told that their performance on an upcoming test would be predictive of their ability to succeed in college. They were randomly assigned to either complete a standard VA exercise, a VA exercise that specifically prompted them to reflect on independent values (Independent VA), a VA exercise that prompted them to reflect on interdependent values (Interdependent VA), or a control writing activity. The Independent VA exercise was found to improve participants' achievement on the test compared to each of the other three exercises (Tibbetts et al., 2016). Having FG students affirm their independence may have emphasized the ways in which their values match the norms of the university, reducing the social identity threat associated with cultural mismatch, and promoting positive academic outcomes.

In sum, the theory and research reviewed thus far suggests that VA interventions may alleviate social identity threat in at least two ways. First, VA can *buffer* one's sense of self-integrity from social identity threat by making the many components of one's identity salient, thereby reducing the influence of a threat to any given component of one's identity. In this way, VA does not actually reduce the threat itself, but it makes one's global self-integrity more robust to threats against individual identity components. Second, affirming independent values may directly *reduce* the threat experienced by FG students in university settings as a result of cultural mismatch. By highlighting the ways in which FG students' values are consistent with those of their university, the threatening experience of cultural mismatch may be mitigated. In other words, the VA intervention may help FG students to bridge the personal values and aspects of their identity that they associate with their cultural background and the aspects of their identity that they associate with being a student in their university's cultural context.

Can Values Affirmation Foster Bicultural Identity Integration for FG Students?

Herrmann and Varnum (2018a) suggest that FG students experience biculturalism in that they have multiple social-class identities corresponding to their lives at home (i.e., working-class) and college (i.e., middle-/upper-class). The authors posit that, like individuals with multiple national or ethnic identities, FG students enjoy improved psychological, health, and academic outcomes to the extent that their social-class identities are integrated. Although the benefits of such "bicultural identity integration" have primarily been studied as a function of national or ethnic identities, research indicates that individuals with two cultural identities experience increased belonging, satisfaction with life, and improved mental health outcomes when these two identities are integrated (Benet-Martinez & Haritatos, 2005; Chen et al., 2008; Mok et al., 2007; Nguyen & Benet-Martinez, 2013). Indeed, in a series of studies, Herrmann and

Varnum (2018b) found that FG students who reported higher (vs. lower) levels of social-class identity integration experienced greater satisfaction with life, better mental and physical health, and improved GPAs.

Tibbetts and colleagues' (2016) findings suggest that FG students can benefit from affirming their independent values because such affirmation highlights alignment with the university context. On the other hand, affirming interdependent values might benefit FG students as well, providing them an opportunity to bring their interdependent values into the university context. Consistent with this possibility, Covarrubias and colleagues (2016) found that a family-oriented VA intervention improved performance on an academic task for Latinx middle-school and college students, another culturally interdependent group. To synthesize these two insights, it is possible that FG students would benefit most from affirming both the interdependent values associated with working-class culture *and* the independent values associated with university culture, as this may serve to facilitate integration of these two social-class identities. Indeed, although Tibbetts and colleagues (2016) found the largest performance gains for FG students who affirmed their independent values in a standard VA intervention in their biology class, 95% of these students *also* affirmed interdependent values in their essays. Thus, an intervention that prompts students to write about both types of values might be optimal, if it helps students integrate independent and interdependent cultural values.

Tibbetts and colleagues (2018) tested an Independent VA, an Interdependent VA, and a "Combined VA" intervention that prompted reflection on both types of values by asking students to choose values from each of the two categories. They randomly assigned students to receive one of these three interventions or a control exercise in the context of a two-year college system. The Combined VA intervention positively affected FG students' course grades whereas the other

two treatment conditions did not. In addition, because the phenomenon of cultural mismatch had not yet been studied in two-year college contexts, the researchers also surveyed instructors about the values of the institution and measured students' perceptions of match between their own values and those of their institution.

Tibbetts and colleagues (2018) found a greater endorsement of interdependent values (and decreased emphasis on independent values) among instructors compared to levels previously found in four-year universities (Stephens, Fryberg et al., 2012). Furthermore, FG and CG students in this institution did not report differential levels of perceived match, on average. It is perhaps unsurprising, then, that although the Combined VA intervention increased course grades for FG students, it did not affect FG students' perceptions of match with the institution. Rather, it was the interdependent VA intervention that increased perceptions of match in this context. Thus, the research conducted by Tibbetts and colleagues (2018) is promising with respect to the potential of a "combined" version of VA, especially for supporting FG students' academic performance, but also highlights the importance of context for understanding cultural mismatch in academic settings.

Important questions remain unanswered regarding FG students' experiences in university settings and which types of values are most beneficial for these students to affirm. First, students' experience of "match" with institutional values has rarely been measured using a self-report measure like that developed by Tibbetts and colleagues (2018) for two-year colleges.[1] Instead, match has primarily been inferred from student- and institution-level measures of independence and interdependence in university contexts. Research is needed to document the

[1] A related measure of "subjective sense of fit" was collected in a university setting and published after data from the present study were collected (Phillips et al., 2020). This measure included some items that assessed perceived alignment between personal and institutional values, like that developed by Tibbetts and colleagues (2018), but it was designed to more broadly assess feelings of inclusion and comfort at the university.

theorized gap in FG and CG students' subjective experience of match in these contexts, as well as the hypothesized mechanism explaining this gap (i.e., differential endorsement of independent and interdependent values). Second, it is unknown whether a "combined" VA intervention that encourages integration of independent and interdependent values can reduce FG students' experience of cultural mismatch in university settings where such a mismatch is perceived.

The Present Research

Research to date highlights cultural mismatch as an important psychological barrier to FG students' success and suggests that VA interventions may help to address this barrier. However, research is needed to document the gap between FG and CG students' subjective experience of "match" with institutional norms in a four-year university context. In addition, research has not yet examined whether VA effects might be strengthened for FG students in four-year universities if they are encouraged to write about *both* independent and interdependent values. Such reflection might prompt FG students to recognize that they can fit into the university's independent culture while also embracing their interdependent values, facilitating the integration of two social-class identities.

We address these gaps across two studies. In Study 1, we measure students' perceptions of "institutional match" in a university context, examine differences in this measure by generational status, and explore whether such differences are explained by endorsement of independent and interdependent motives for attending college. In Study 2, we test a Combined VA intervention that prompts reflection on both independent and interdependent values in a laboratory study and evaluate effects on FG students' sense of institutional match and performance on a math test. These studies were each approved by the Institutional Review Board, and none of the reported data has been previously published.

Study 1

We pursued three goals in Study 1. First, we measured students' perceptions of institutional match in a university setting and explored its relationship with theoretically related and unrelated measures. We reasoned that institutional match should be negatively associated with belonging uncertainty (Walton & Cohen, 2007), given previous research suggesting that a mismatch between student motivation and educational context can result in a decreased sense of belonging (Sherman et al., 2009). We also expected that match would be positively associated with feelings of academic confidence in college, as students tend to be more confident in their ability to succeed in contexts in which they feel that they belong (Harackiewicz et al., 2014; Walton & Cohen, 2007). On the other hand, we expected that institutional match would be uncorrelated with high-school standardized test performance (i.e., ACT, SAT) as these tests are taken prior to college and should not directly bear on students' sense of match with the university culture.

Second, we tested whether there was a gap in institutional match for FG and CG students. Consistent with cultural mismatch theory (Stephens, Fryberg et al., 2012), we expected that institutional match would be lower among FG students than CG students. Third, we examined whether this predicted difference in match would be at least partially driven by students' interdependent and independent motives for obtaining attending college. Such a pattern would be consistent with Stephens, Fryberg, and colleagues' (2012) interpretation that cultural mismatch results from students' and universities' differential endorsement of independent and interdependent values.

Method

Participants

Students ($N = 476$) were asked to complete an online survey in exchange for extra credit in an introductory psychology course at a flagship state university. Of these students, 11 were excluded because they did not respond to any of the items included in this study. The sample for Study 1 thus consisted of 465 students (17% FG; 65% female; 76% White, 16% Asian, 3% Latinx, 4% Multiple, 2% Other).

All participating students consented to release the use of their survey responses for research purposes, but they did not provide access to their academic records. Therefore, we were unable to associate survey measures with academic performance in the present study.

Measures

All items were measured on a 7-point Likert-type *Strongly Disagree – Strongly Agree* scale unless otherwise noted. Institutional match was adapted from the two-item measure tested by Tibbetts and colleagues (2018) in a two-year college setting ("I feel that the values of [university] align with those that I was raised with," "I feel that my values and goals are well matched with those of [university]"; $\alpha = .79$, $r = .65$). Belonging uncertainty was measured with two items adapted from Walton and Cohen (2007; "When something bad happens, I feel that maybe I don't belong at [university]," "Sometimes I feel that I belong at [university], and sometimes I feel that I don't belong at [university]"; $\alpha = .78$, $r = .64$). Academic confidence was measured with a single item ("I am usually confident that others will have a good impression of my ability"). High-school standardized test performance was collected via self-report, and measured with ACT scores when available (81% of participants) and SAT scores otherwise (14%); these measures were standardized prior to being combined onto a single scale.

We measured students' motives for attending college using scales adapted from Stephens, Fryberg et al. (2012). Students evaluated 17 potential reasons for attending college. Five reasons

were coded as interdependent: "Help out my family after I'm done with college," "Give back to my community," "Show that people with my background can do well," "Provide a better life for my own children," and "Be a role model for people in my community" ($\alpha = .73$). Four reasons were coded as independent: "Explore new interests," "Expand my understanding of the world," "Become an independent thinker," and "Learn more about my interests" ($\alpha = .76$).[2] We sought to create a measure of students' interdependent motives *relative to* their independent motives, consistent with classic theories of personal values positing that the relative importance of values (or value "hierarchies") determine behavior and attitudes to a greater degree than absolute levels of a given value (e.g., Allport, 1961; Rokeach, 1973; Schwartz & Blisky, 1987). To create such a measure, we subtracted students' scores on the independent motives scale from their scores on the interdependent motives scale. The difference score approach has been used to study interdependence and independence in previous research (e.g., Na et al., 2010) because such measures capture the relative levels of these values within participants.

Results

Analysis Plan

We first tested associations between institutional match, belonging uncertainty, academic confidence, and standardized test performance, using Pearson correlation coefficients. We then tested for a generational status gap in institutional match. To do so, we regressed institutional match on generational status, controlling for gender.[3] Finally, we tested college motives as a mediator of any difference between FG and CG students on institutional match. To do so, we

[2] The remaining eight reasons were additional reasons that were not included in Stephens, Fryberg, and colleagues' (2012) original measure: "Support myself financially," "Learn things that will help me make a positive impact on the world," "Establish social networks," "Gain skills that I can use in a job to help others," "Contribute to society," "Help others," "Prepare for my future career," and "Make new friends."

[3] The analyses reported here do not control for race/ethnicity because the vast majority of the sample (91%) were White or Asian). However, results do not change when controlling for race/ethnicity.

tested a path model including generational status and gender as predictors of college motives and institutional match, and also including college motives as a predictor of institutional match. Within this model, we tested the indirect effect of generational status on institutional match via college motives.

All regression analyses in Studies 1 and 2 were conducted with the lavaan package in R, using robust maximum likelihood estimation. Mediation analyses were conducted by generating bootstrapped confidence intervals for indirect effects using maximum likelihood estimation (as the "se = 'bootstrap'" option is not available using robust maximum likelihood estimation). Missing data (< 5% for each measure in this study) were handled using full-information maximum likelihood estimation for all analyses, except that Pearson correlation coefficients were computed using pairwise deletion.

Associations with Institutional Match

Zero-order correlations and descriptive statistics are presented in Table 1. Consistent with our hypotheses regarding associations with other variables, institutional match was negatively associated with belonging uncertainty, positively associated with academic confidence, and not significantly correlated with high-school standardized test performance.

Differences in Institutional Match by Generational Status. We found the hypothesized difference in institutional match as a function of generational status: on average, FG students reported significantly lower levels of institutional match (M = 5.17, SD = 1.05) than CG students (M = 5.53, SD = 1.21), β = -0.12, p = .006. Levels of institutional match did not significantly differ as a function of gender, β = -0.08, p = .125. We tested interdependent (minus independent) motives as a mediator of the effect of generational status on institutional match (see Figure 1). The generational status difference in institutional match was partially mediated by

interdependent (relative to independent) college motives. FG students were higher in interdependent (minus independent) motives for attending college (M = -0.62, SD = 0.93) than were CG students (M = -1.17, SD = 1.19), $\beta = 0.19$, $p < .001$. Interdependent motives were in turn associated with lower levels of institutional match, $\beta = -0.12$, $p = .025$, and partially mediated the generational status difference in institutional match, 95% CI [-0.169, -0.013].

Discussion

We measured FG and CG students' perceptions of institutional match at a flagship state university. We found that, consistent with our reasoning, institutional match was significantly correlated with belonging uncertainty and academic confidence. The correlations were relatively small ($r < .30$) indicating that although the predicted correlational pattern was supported, institutional match was a distinct construct. In addition, we found evidence of the theorized gap in institutional match as a function of generational status. Consistent with cultural mismatch theory (Stephens, Fryberg et al., 2012), the gap in match was partially explained by FG students' interdependent (relative to independent) motives for attending college, which may clash with the independent norms emphasized at state universities. In Study 2, we extended this research to examine whether we could facilitate congruence between student and institutional values to address this gap in institutional match.

Study 2

In Study 2, we modified a VA intervention to address FG students' perceptions of mismatch with institutional values. Previous research indicates that prompting FG students to reflect on the independent values that are most important to them can facilitate their performance on a potentially-stressful academic test (Tibbetts et al., 2016). Reflecting on these values may highlight the ways in which FG students' own independent values match those of their

university. However, such reflection may direct FG students' thoughts away from the interdependent values that partially characterize working-class culture and upbringing (Stephens, Fryberg, et al., 2012). Although this focus on independent values may help FG students to see the ways in which their values are aligned with the university, it may also create a sense of disconnect from important and long-held values (Lubrano, 2004). According to the social-class bicultural identity integration model, FG students are caught between two cultural identities – working-class individual and college student – and their experience of belonging in college will be increased to the degree that these identities are integrated (Herrmann & Varnum, 2018a, 2018b). As such, an intervention that prompts affirmation of both independent and interdependent values may be an optimal exercise for FG students, because it allows for simultaneous affirmation of both cultural identities. In Study 2, we tested the effects of such an intervention on institutional match and performance on a math test in a laboratory study at a flagship state university. We compared this modified intervention to a standard VA intervention and a control condition.

In addition, we tested two potential mediators of the effects of VA interventions on academic performance. A number of affective and cognitive mechanisms of VA interventions have been examined in previous research (see McQueen & Klein, 2006, for a review). Two of these mediators are of particular relevance to the present research. First, in the midst of a test, threat can serve as a distraction, siphoning valuable cognitive resources away from the task at hand (Cohen & Sherman, 2014). Thus, VA interventions may work – in part – by reducing *distraction* during such tasks. Results of previous studies are consistent with this possibility. For example, VA has been found to increase available working memory (Logel & Cohen, 2012), self-control during cognitive depletion (Schmeichel & Vohs, 2009), and ability to solve problems

under pressure (Cresswell et al., 2013).

Second, confidence (or "self-efficacy") is a powerful antecedent of students' achievement outcomes (see Pajares, 2003; Honicke & Broadbent, 2016, for reviews). By bolstering individuals' sense of self-worth, VA exercises may increase individuals' sense of *confidence* that they can take on difficult tasks and, in turn, improve their performance. Indeed, a number of studies suggest that VA interventions can increase individuals' sense of confidence (e.g., Briñol et al., 2007; Harris et al., 2007; Stinson et al., 2011). To examine each of these possibilities, we tested distraction and confidence as potential mediators of effects on test performance in Study 2.

Method

Participants

This study was run over the course of one academic semester, after which we ended data collection. Introductory Psychology students at a flagship state university ($N = 243$) participated in the study. Of these students, 23 were excluded due to procedural errors. The final sample thus consisted of 220 students (39% FG; 50% female; 71% White, 14% Asian or Asian-American, 8% Hispanic or Latino/a, 2% Black, 5% multi-racial). Students participated in exchange for extra credit in the course.

Procedure

We used an experimental protocol designed to increase the salience of generational status prior to writing a VA (or control) essay. This protocol was adapted from Tibbetts and colleagues (2016, Study 2). The experiment occurred in a large room designed to look similar to a classroom, with math and science posters on the wall and privacy dividers between desk spaces. Students were told that they would be working on a series of standardized tests that are used to predict success in college.

Participants worked through questionnaires and tests provided in a folder on their desk, in a sequence that was verbally dictated by an experimenter. First, participants filled out a questionnaire about their academic background; this questionnaire included questions to increase the salience of generational status (Croizet & Claire, 1998): "Please mark the highest level of education your mother/father (or guardian) received", and "Are you a first-generation college student?" Next, participants completed a "math warm-up" exercise (a sheet of 12 multiplication problems to be completed in two minutes), which served as a baseline indicator of math performance. Participants then received writing prompts that differed by experimental condition, which were presented as a "writing warm-up" exercise. Participants were given 10 minutes to complete the writing exercise, during which they selected 2-3 values from a list and wrote essays about those values. On a final page in the writing packet, participants summarized their essays in two sentences to reinforce reflection on their selected values.

After writing, participants filled out a questionnaire in which they reported their confidence about standardized tests. They were then allotted 15 minutes to complete the math test (the performance outcome), which consisted of 16 Graduate Record Examinations (GRE)-style, multiple-choice math problems. Finally, after the test, participants reported the degree to which they felt distracted during the test, as well as their sense of match with the values of the university.

Intervention and Control Materials

We randomly assigned participants to receive one of three "writing warm-up" packets, which differed slightly in terms of instructions. Participants in the *Standard VA* condition were asked to select the 2-3 values that were most important to them from a list of 13 values, and subsequently, to write an essay about why the selected values were important to them. In the

Combined VA condition, participants were asked to select 2-3 values that were most important to them, including at least one value from each of two lists containing 4 values: one list contained three "independent" values (*Independence, Learning and Gaining Knowledge, Curiosity*) and one neutral value that was rarely selected in previous research (*Being Good at Art*), and one list contained three "interdependent" values (*Relationships with Friends and Family, Belonging to a Social Group, Spiritual or Religious Values*), and one rarely-selected neutral value (*Social Networking and/or Gaming*). These lists were labeled with the benign headings "Column A" and "Column B". Categorization of independent and interdependent values was informed by previous research. Specifically, Tibbetts and colleagues (2016) coded standard VA essays to determine which values were most associated with writing about independence and interdependence. These values have been used in previous studies to create versions of the VA intervention that focused specifically on independence *or* interdependence (Tibbetts et al., 2016, Study 2), as well as the Combined VA intervention tested by Tibbetts and colleagues (2018). In the control condition, participants selected 2-3 of their least important values from a list of 13 values and wrote about why those values might be important to someone else. See Appendix A for all writing prompts.

Measures

Essay content. We coded participants' essays for the presence or absence of independent themes and interdependent themes using procedures reported by Tibbetts et al. (2016). In addition, because several of the independent values offered in the writing exercises were thematically academic (e.g., "learning and gaining knowledge"), we coded for whether participants wrote about academic themes. Agreement between coders was 95%, 94%, and 88% for the independent, interdependent, and academic dimensions, respectively (see Appendix B for coding schemes). We computed an indicator of whether participants wrote about interdependent

themes as well as independent and/or academic themes to indicate whether participants in the Combined VA condition complied with instructions. Indeed, we found that 87% of participants in the Combined VA condition wrote about interdependent and independent/academic themes, whereas 62% of participants in the Standard VA condition and 0% of control participants did so. Thus, the vast majority of students in the Combined VA condition wrote about values from each of the two lists.

We also computed an indicator of whether participants wrote about both independent and interdependent themes in the same essay, as this indicator directly corresponds to our hypothesis that affirming independent and interdependent values would facilitate institutional match for FG students. Proportions of participants who wrote about independent and/or interdependent themes in each condition are presented in Table 2. Tukey's honest significant difference tests revealed significant pairwise differences in this measure between each treatment condition and control, *p*s $< .001$, and a significant difference between the two treatment conditions, $p = .007$. More participants in the Combined VA condition (49%) wrote essays with interdependent and independent themes than participants in the Standard VA condition (29%). 48% of participants in the Combined VA condition wrote only about interdependent values, and the remaining 3% of participants in this condition wrote either about independent values or neither interdependent nor independent values.

Among essays in which participants wrote about both independent and interdependent themes, a single coder examined whether participants seemed to integrate the two types of values (i.e., whether they wrote about how the two values were related or compatible). Eighteen participants (31% of the 59 participants who wrote about both types of values) were found to explicitly integrate the independent and interdependent themes. For example, some students

discussed how strong relationships allowed them to pursue their independent goals, or how their friends and family supported them in wanting to be independent (see Appendix C for examples). Although there were too few students to statistically test the effects of integrating independent and interdependent values, such writing suggests that the VA exercises helped some students to consider how their independent and interdependent values could be complementary.

Primary measures. Baseline performance was the number of problems answered correctly on the math warm-up and math test score was the number of problems answered correctly on the standardized math test. All self-report scales were measured with 7-point *Strongly Disagree – Strongly Agree* Likert items. We measured standardized test confidence with two items ("I'm the kind of student who scores high on standardized math tests," "I'm the kind of student who scores high on standardized verbal tests*";* $\alpha = .72$, $r = .57$), and we measured distraction with three items ("My mind wandered while I was taking the test," "I had trouble concentrating on the test," "I felt distracted while taking the test"; $\alpha = .89$). Institutional match was the two-item measure developed by Tibbetts et al. (2018) and tested in Study 1 ("I feel that the values of [university] align with those that I was raised with," "I feel that my values and goals are well matched with those of [university]"; $\alpha = .86$, $r = .76$). Correlations and descriptive statistics are presented in Table 3. Surprisingly, institutional match and math test score were not significantly correlated, suggesting that institutional match was unrelated to performance in the context of this study.

Results

Analysis Plan

We first tested the effects of condition on institutional match and math test score, and whether these effects varied as a function of participants' generational status and gender (we did

not have sufficient statistical power to test subgroup effects for students from underrepresented racial/ethnic backgrounds). We then tested distraction and standardized test confidence as mediators of any performance effects, as these are theorized mechanisms of the effects of VA interventions on performance outcomes. Finally, we did a secondary analysis of the effects of actual writing content. Specifically, we examined institutional match and math test score as a function of the themes about which participants wrote in their VA essays.

Treatment Effects

We used multiple regression to test condition effects and moderation by generational status. Our primary model consisted of 9 terms: two condition contrasts (dummy codes comparing each treatment group to Control), an FG contrast (FG = +.5, CG = -.5), the two condition x FG interactions, gender (female = +.5, male = -.5), the two condition x gender interactions, and baseline performance (standardized). Full regression models are presented in Table 4.

Institutional match. There was a significant effect of generational status on institutional match, $\beta = -0.45$, $p < .001$, indicating that in the Control condition, FG college students reported lower levels of perceived match with the institution than CG college students. However, this effect was qualified by a significant Combined VA x FG interaction, $\beta = 0.24$, $p = .014$. Among FG students, institutional match was significantly higher in the Combined VA condition ($M = 5.49$, $SD = 1.27$) than the control condition ($M = 4.65$, $SD = 1.15$), $\beta = 0.31$, $p = .005$. Conversely, among CG students, institutional match was not higher in the Combined VA condition ($M = 5.61$, $SD = 1.36$) than the control condition ($M = 5.80$, $SD = 1.18$), $\beta = -.07$, $p = .460$. Consequently, the Combined VA intervention reduced the generational status gap in institutional match by 90% (a raw difference of 1.15 in the Control condition vs. 0.12 in the

Combined VA condition; see Figure 2). The Standard VA condition did not significantly affect institutional match at the main effect level, nor were there significant interactions between Standard VA and the demographic terms.[4]

Math test score. On average, performance was higher in the Combined VA condition (M = 9.86, SD = 2.43) than the Control condition (M = 8.89, SD = 2.64), β = .19, p = .013 (see Figure 3), suggesting that all students benefitted from the Combined VA intervention. Contrary to our hypothesis, the effect of the Combined VA condition did not significantly vary by generational status, β = -0.03, p = .768. This may be partially attributable to the lack of a generational status achievement gap in the sample, β = -0.09, p = .410. In addition to these effects, men received higher scores on the math test than women, β = -0.28, p = .011, and students with higher baseline performance received higher scores than those with lower baseline performance, β = 0.25, p < .001. The Standard VA condition did not significantly affect performance at the main effect level, nor were there significant interactions between Standard VA and the demographic variables.[5]

Mediation

We tested standardized test confidence and distraction as mediators of the Combined VA effect on math test performance (see Figure 4). Effects from the mediation model are displayed in Table 5. Confidence, 95% CI [.073, .645], and distraction, 95% CI [.005, .551], each significantly mediated the effect. Combined VA improved math test scores via increased confidence and decreased distraction on the test.

---

[4] We also tested the comparison of Combined VA and Standard VA in a secondary model, identical to the primary treatment model, except that the condition dummy codes compared the Control condition and the Combined VA condition to Standard VA. There was no significant effect of the contrast comparing Combined VA to Standard VA, nor any interactions between this contrast and the demographic variables, ps > .127.

[5] As with institutional match, we tested a secondary model with math test score as the outcome to compare the Combined VA and Standard VA conditions. There was no significant effect of the contrast comparing Combined VA to Standard VA, nor any interactions between this contrast and the demographic variables, ps > .171.

Effects of Essay Content

We hypothesized that the Combined VA intervention would be effective because it prompted reflection on both independent and interdependent values. We could only detect both themes in the writing of 49% of the participants that completed this exercise (though it is possible that more participants in this condition reflected on both themes without explicitly including them in their writing). Within this condition, 48% of participants wrote about interdependence only. As such, we explored differences in institutional match and math test score between participants who wrote about both themes, those who wrote about interdependence only, and those who wrote about neither theme across the sample.[6] We tested a model that was identical to the primary model, except that we replaced the condition contrasts with a set of dummy coded contrasts comparing students who wrote about neither theme and students who wrote about interdependence only to students who wrote about both independence and interdependence.[7]

Institutional match. Participants who wrote about both themes reported higher levels of institutional match (M = 5.75, SD = 1.23) than participants who wrote about interdependence only (M = 5.36, SD = 1.38), β = -0.17, p = .041, and participants who wrote about neither interdependence nor independence (M = 5.38, SD = 1.25), β = -0.21, p = .007. In addition, there was a significant interaction between generational status and the contrast comparing participants who wrote about both themes to those who wrote about neither theme, β = -0.22, p = .020. The effect of writing about both themes (compared to neither) was stronger among FG students

[6] Less than 5% of the sample (n = 10) wrote about independence only, so we excluded this small group from these analyses.

[7] We could not conduct this same type of analysis to test the effects of writing about independent and/or academic themes as well as interdependent themes because there were too few FG students who wrote about only independent/academic themes (n = 11) or only interdependent themes (n = 6).

(M_{BOTH} = 5.65, SD_{BOTH} = 1.21; $M_{NEITHER}$ = 4.62, $SD_{NEITHER}$ = 1.13) than CG students (M_{BOTH} = 5.82, SD_{BOTH} = 1.25; $M_{NEITHER}$ = 5.75, $SD_{NEITHER}$ = 1.14). There was no significant interaction between the contrast comparing participants who wrote about both themes to those who wrote about interdependence only and generational status, β = -0.13, p = .200. However, there was a significant simple effect of writing about both values (versus interdependence only) among FG students (M_{BOTH} = 5.65, SD_{BOTH} = 1.21; $M_{INTERDEPENDENCE}$ = 4.97, $SD_{INTERDEPENDENCE}$ = 1.28) β = -0.27, p = .027, consistent with the hypothesis that reflecting on both themes (rather than interdependence alone) facilitates perceptions of match for FG students.

Math test score. There were no significant main effects of the writing contrasts on math test score, ps > .492. However, there was a significant interaction between the contrast comparing participants who wrote about both values to those who wrote about interdependence only and generational status, β = 0.26, p = .006, indicating that writing about both values was more positively associated with math test score for CG students than FG students. This finding is somewhat surprising in light of the fact that effects of condition on math test score were not moderated by generational status. In sum, the lack of a main effect of writing about both themes on math test score suggests that reflection on these themes, specifically, did not explain the effects of the Combined VA condition on performance.

Discussion

We tested two versions of a VA intervention among university students. The Combined VA intervention, which prompted affirmation of both independent and interdependent values, increased perceptions of institutional match among FG students, substantially reducing the gap in this measure between FG and CG students. Although only 49% of participants in the Combined VA condition wrote about independent and interdependent themes (as compared to 29% in the

Standard VA condition), writing about both themes was significantly associated with increased perceptions of match as compared to writing about interdependence only or neither theme, overall and specifically among FG students. These findings are consistent with research on bicultural identity integration, which suggests that individuals with multiple cultural identities (including FG students) experience the greatest belonging and well-being when they see these identities as integrated and compatible (Benet-Martinez & Haritatos, 2005; Chen et al., 2008; Hermann & Varnum, 2018a, 2018b; Mok et al., 2007; Nguyen & Benet-Martinez, 2013). The benefits of the Combined VA intervention for FG students are also consistent with Tibbetts and colleagues' (2018) finding that Combined VA improved course grades for FG students in two-year colleges. In future studies, researchers may benefit from providing students with independent values that more consistently evoke writing about independent themes to enhance the effects of this intervention.

In addition, students who received the Combined VA intervention achieved higher math test scores, and this effect was not moderated by generational status. One reason may be that there was no achievement gap between FG and CG students that could potentially be closed by an intervention. Thus, in contrast to previous research in which effects of VA interventions were specific to identity-threatened groups (e.g., Brady et al., 2016; Cohen et al., 2006; Miyake et al., 2010), it is possible that participants in our study experienced similar levels of threat, regardless of group membership. The transition to college can be stressful for all students (Arnett, 2001; Sy et al., 2011), and the test – which was framed to be predictive of students' college aptitude – may have broadly exacerbated doubts about successfully undergoing this transition and threatened participants' identities as a college student. This more general threat may have affected students' performance on the test, as opposed to the threat associated with low levels of institutional

match, which was uncorrelated with performance in the present study (r = -.01).

VA interventions are theorized to help students experiencing identity threats to bolster their sense of self-integrity by reminding them about the many important components of their identity from which they can draw self-worth beyond performance on a single academic task (Cohen & Sherman, 2014). The Combined VA intervention may be an especially effective method of bolstering self-integrity because it prompts students to reflect on at least two distinct aspects of their identity: their independence and their interdependence. The Combined VA intervention may also have been especially effective because, compared to Standard VA, it prompted students to reflect on a broader range of topics while undergoing a stressful event. Writing about a wider array of topics may have helped participants more thoroughly organize their concerns about having their potential in college evaluated, and it may have made them more likely to write about a particular concern about which they would benefit from expressing their thoughts. This possibility is consistent with previous research indicating that expressive writing can improve psychological and behavioral outcomes, including reduction of cognitive load, by helping individuals to structure their thoughts in a more organized and coherent way (e.g., Klein & Boals, 2001; Park, 2010; Pennebaker, 1997; Pennebaker & Chung, 2007). Indeed, the effect of the Combined VA intervention on participants' math test scores was partially mediated by reduced distraction on the test (as well as increased confidence), suggesting that the intervention reduced participants' cognitive load as they solved the math problems on the test. By helping students to organize their thoughts during a stressful academic situation, the Combined VA intervention may have afforded students more capacity to direct their attention to the test and thereby attain a higher score.

Inconsistent with prior research, the effects of the Standard VA intervention were non-

significant. However, levels of match and performance were higher in the Standard VA condition than in the control condition (among FG students and among all students, respectively), and it is possible that significant positive effects would have emerged with greater statistical power. Future research is necessary to examine whether positive effects of the Standard VA intervention can be detected in this context. We expect that such research would uncover significant positive effects of both VA interventions compared to control, but stronger effects of the Combined VA intervention.

General Discussion

FG students experience a particular type of social identity threat in four-year college settings: a cultural mismatch in which their relatively interdependent values are devalued by universities' implicit endorsement of independent norms (Branscombe & Ellemers, 1998; Steele et al., 2002; Stephens, Fryberg, et al., 2012). In the present research, we measured students' perceptions of institutional match and detected a gap in this measure between FG and CG students. In addition, we found that this gap is explained by the theorized mechanism described by cultural mismatch theory: FG students' relatively higher interdependent (vs. independent) motives for attending college in the context of a four-year university with norms of independence. This measure had not revealed differences as a function of generational status in two-year colleges in which norms were more interdependent (Tibbetts et al., 2018), suggesting that the experience of cultural mismatch is specifically related to the interplay between FG students' interdependent values and the independent values implicit in most four-year universities. By demonstrating that our measure could detect students' subjective experiences of cultural mismatch, this research provides a foundation for future researchers to evaluate the factors that can create (and potentially reduce) this experience.

The experience of cultural mismatch is attributable to Western universities' rigid norms of independence, which alienate members of social groups that are relatively interdependent. Ideally, universities will continue to work toward sending signals of inclusivity and that they value the perspectives of other cultures. However, in the context of universities that currently send strong signals of independent norms (Stephens, Fryberg, et al., 2012), we sought to implement a student-directed intervention that would mitigate the experience of cultural mismatch. We found that prompting students to reflect on both independent and interdependent values in a "Combined VA" intervention reduced the generational status gap in institutional match by 90%. This finding is consistent with the possibility that the compartmentalization of independent and interdependent values plays an important role in creating the experience of cultural mismatch. To the degree that FG students integrate distinct cultural identities that are more and less aligned with university norms, they may experience a greater sense of belonging at these institutions (Herrman & Varnum, 2018a, 2018b). In addition to providing insight into the experience of cultural mismatch and bicultural identity integration, these findings introduce an intervention strategy to improve FG students' experiences in university settings. This approach was found to improve course grades for FG students in two-year colleges (Tibbetts et al., 2018), and it should be tested in university classrooms as well to evaluate its effects on FG students' academic performance and long-term persistence in four-year institutions.

This research has important implications for self-affirmation theory and the development of VA interventions. First, these studies provide insight into the circumstances under which self-affirmation can be effective. We found that the Combined VA intervention improved performance on a math test across all students, regardless of generational status. These findings suggest that self-affirmation may be an effective strategy for coping with stressful situations,

even when experiences of stress and threat are unrelated to membership in a group with a threatened identity. Many students undergoing the transition to college may be threatened by the possibility of failing at a task that reflects their ability to succeed in college, regardless of their background. Self-affirmation may help to alleviate this experience to the extent that students use the opportunity to reflect on a broad range of sources of self-integrity (Cohen & Sherman, 2014) and organize their thoughts at a stressful time (Klein & Boals, 2001; Park, 2010; Pennebaker, 1997; Pennebaker & Chung, 2007).

We documented mechanisms by which VA interventions may affect performance on a test: by increasing confidence and reducing distraction (i.e., cognitive load) during the test. Such process analyses provide direct tests of self-affirmation theory and inform the mechanisms by which VA interventions produce positive effects. An improved understanding of these processes may help future researchers to develop stronger variations of VA interventions that more effectively target these mechanisms (Harackiewicz & Priniski, 2018).

In addition, results are consistent with previous research suggesting that affirming particular types of values may amplify the effectiveness of VA interventions for certain groups (e.g., Covarrubias et al., 2016; Shnabel et al., 2013; Tibbetts et al., 2016, 2018). We found that being prompted to affirm both independent and interdependent values increased institutional match for FG students. As such, the success of VA interventions may be contingent upon more than simply affirming one's values: rather, the content of the affirmed values may be essential to the intervention's effectiveness. Thus, the particular set of values provided in a VA intervention may be more than incidental aspects of the intervention, but instead vital components of successful implementation. In the case of FG students, integrating independent university values with interdependent working-class values may be critical for facilitating the integration of

multiple social-class identities while shaping perceptions of match with an independent university culture.

An important limitation of the present research is that our samples were fairly racially homogenous (91% White or Asian in Study 1, 84% White or Asian in Study 2). Previous research on VA interventions has shown positive effects for individuals from underrepresented racial and ethnic backgrounds (e.g., Brady et al., 2016; Cohen et al., 2006, 2009; Dee, 2015). Due to low numbers of participants from these backgrounds, we were unable to test whether the VA interventions were particularly effective for these individuals and whether there was a particular advantage of the Combined VA intervention for these students. It will be important for future research to evaluate this possibility in more diverse samples.

The positive effects of the Combined VA intervention provide promising directions for future research. First, future research should evaluate the impact of explicitly directing students to integrate their interdependent and independent values. In the present research, we asked students to affirm both of these types of values, but many wrote about these values separately without integrating them. Individuals with multiple cultural identities experience greater belonging when these identities are integrated (Herrmann & Varnum, 2018a; Nguyen & Benet-Martinez, 2013), and a VA intervention may be particularly effective for FG students if it provides a structured platform for them to think about how these important values can complement one another. We found that 31% of students who wrote about both values integrated them spontaneously, but it is an open question whether this was adaptive, and if so, whether it can be encouraged. Second, researchers should compare the Combined VA intervention to VA interventions that only evoke affirmation of independent or interdependent values in university settings (as Tibbetts and colleagues, 2018, did in two-year colleges). Such research will help

verify whether prompting affirmation of both types of value increases effectiveness for FG students, over and above prompting affirmation of only one type of value. Finally, the impacts of the Combined VA intervention should be tested in the field at four-year institutions. Such research will inform whether the promising effects reported here can be extended beyond the laboratory to affect FG students' experiences and performance in universities more broadly. Conducting additional field research on this approach will shed light on real-world contextual factors that may facilitate or interfere with the process of integrating independent and interdependent values, and it will provide a test of the power of VA interventions to create meaningful change for FG students in university settings.

Conclusion

For social-psychological interventions to be effective, they must be implemented with an understanding of the psychological experience of those who will receive the intervention (Harackiewicz & Priniski, 2018; Lewin, 1951; Miller & Prentice, 2013; Ross & Nisbett, 1991; Walton & Wilson, 2018). The experience of cultural mismatch has been identified as a critical target for intervention with first-generation college students (Stephens, Fryberg, et al., 2012; Stephens, Townsend, et al., 2012), and our findings suggest that addressing this mismatch with self-affirmation can be an effective way to promote more positive experiences and outcomes for these students. By documenting perceptions of cultural mismatch among FG students and testing a Combined VA intervention strategy to reduce this mismatch, the present research enhances our understanding of the psychological experience of FG students and informs intervention efforts to help these students overcome barriers in higher education.

References

Allport, G. W. (1961). *Pattern and growth in personality*. Holt, Rinehart & Winston.

Arnett, J. J. (2001). Conceptions of the transition to adulthood: Perspectives from adolescence through midlife. *Journal of Adult Development*, *8*, 133–143. https://doi.org/10.1023/A:1026450103225

Autin, F., Batruch, A., & Butera, F. (2019). The function of selection of assessment leads evaluators to artificially create the social class achievement gap. *Journal of Educational Psychology*, *111*, 717–735. https://doi.org/10.1037/edu0000307

Autor, D. H. (2014). Skills, education, and the rise of earnings inequality among the "other 99 percent." *Science*, *344*, 843–851. https://doi.org/10.1126/science.1251868

Batruch, A., Autin, F., & Butera, F. (2017). Re-establishing the social-class order: Restorative reactions against high-achieving, low-SES pupils. *Journal of Social Issues*, *73*, 42–60. https://doi.org/10.1111/josi.12203

Benet-Martinez, V., & Haritatos, J. (2005). Bicultural identity integration (BII): Components and psychosocial antecedents. *Journal of Personality*, *73*(4), 1015–1050. https://doi.org/10.1111/j.1467-6494.2005.00337.x

Borman, G. D., Grigg, J., & Hanselman, P. (2016). An effort to close achievement gaps at scale through self-affirmation. *Educational Evaluation and Policy Analysis, 38*(1), 21-42. https://doi.org/10.3102/0162373715581709

Brady, S. T., Reeves, S. L., Garcia, J., Purdie-Vaughns, V., Cook, J. E., Taborsky-Barba, S., … Cohen, G. L. (2016). The psychology of the affirmed learner: Spontaneous self-affirmation in the face of stress. *Journal of Educational Psychology*, *108*, 353–373. https://doi.org/10.1037/edu0000091

Brannon, T. N., Markus, H. R., & Taylor, V. J. (2015). "Two souls, two thoughts," two self-schemas: Double consciousness can have positive academic consequences for African Americans. *Journal of Personality and Social Psychology*, *108*, 586–609. https://doi.org/10.1037/a0038992

Branscombe, N. R., & Ellemers, N. (1998). Coping with group-based discrimination: Individualistic versus group-level strategies. In J. K. Swim & C. Stangor (Eds.), *Prejudice* (pp. 243–266). Academic Press. https://doi.org/10.1016/B978-012679130-3/50046-6

Briñol, P., Petty, R. E., Gallardo, I., & DeMarree, K. G. (2007). The effect of self-affirmation in nonthreatening persuasion domains: Timing affects the process. *Personality and Social Psychology Bulletin*, *33*, 1533–1546. https://doi.org/10.1177/0146167207306282

Chen, S. X., Benet-Martnez, V., & Harris Bond, M. (2008). Bicultural identity, bilingualism, and psychological adjustment in multicultural societies: Immigration-based and globalization-based acculturation. *Journal of Personality*, *76*, 803–838. https://doi.org/10.1111/j.1467-6494.2008.00505.x

Cohen, G. L., Garcia, J., Apfel, N, & Master, A. (2006). Reducing the racial achievement gap: A social-psychological intervention. *Science*, *313*, 1307–1310. https://doi.org/10.1126/science.1128317

Cohen, G. L., Garcia, J., Purdie-Vaughns, V., Apfel, N., & Brzustoski, P. (2009). Recursive processes in self-affirmation: Intervening to close the minority achievement gap. *Science, 324*, 400–403. https://doi.org/10.1126/science.1170769

Cohen, G. L., & Sherman, D. K. (2014). The psychology of change: Self-affirmation and social psychological intervention. *Annual Review of Psychology*, *65*, 333–371. https://doi.org/10.1146/annurev-psych-010213-115137

Cook, J. E., Purdie-Vaughns, V., Garcia, J., & Cohen, G. L. (2012). Chronic threat and contingent belonging: Protective benefits of values affirmation on identity development. *Journal of Personality and Social Psychology, 102*, 479–496. https://doi.org/10.1037/a0026312

Covarrubias, R., Herrmann, S. D., & Fryberg, S. A. (2016). Affirming the interdependent self: Implications for Latino student performance. *Basic and Applied Social Psychology, 38,* 47-57. https://doi.org/10.1080/01973533.2015.1129609

Creswell, J. D., Dutcher, J. M., Klein, W. M. P., Harris, P. R., & Levine, J. M. (2013). Self-affirmation improves problem-solving under stress. *PLoS ONE*, *8*, e62593. https://doi.org/10.1371/journal.pone.0062593

Croizet, J. C., & Claire, T. (1998). Extending the concept of stereotype threat to social class: The intellectual underperformance of students from low socioeconomic backgrounds. *Personality and Social Psychology Bulletin, 24,* 588–594. https://doi.org/10.1177/0146167298246003

Dee, T. S. (2015). Social identity and achievement gaps: Evidence from an affirmation intervention. *Journal of Research on Educational Effectiveness, 8*, 149-168. https://doi.org/10.1080/19345747.2014.906009

Hanselman, P., Bruch, S. K., Gamoran, A., & Borman, G. D. (2014). Threat in context: School moderation of the impact of social identity threat on racial/ethnic achievement

gaps. *Sociology of Education, 87*(2), 106-124. https://doi.org/10.1177/0038040714525970

Harackiewicz, J. M., Canning, E. A., Tibbetts, Y., Giffen, C. J., Blair, S. S., Rouse, D. I., & Hyde, J. S. (2014). Closing the social class achievement gap for first-generation students in undergraduate biology. *Journal of Educational Psychology*, *106*, 375–389. https://doi.org/10.1037/a0034679

Harackiewicz, J. M., & Priniski, S. J. (2018). Improving student outcomes in higher education: The science of targeted intervention. *Annual Review of Psychology*, *69*, 409–435. https://doi.org/10.1146/annurev-psych-122216-011725

Harris, P. R., Mayle, K., Mabbott, L., & Napper, L. (2007). Self-affirmation reduces smokers' defensiveness to graphic on-pack cigarette warning labels. *Health Psychology*, *26*, 437–446. https://doi.org/10.1037/0278-6133.26.4.437

Herrmann, S. D., & Varnum, M. E. W. (2018a). Utilizing social class bicultural identity integration to improve outcomes for first-generation college students. *Translational Issues in Psychological Science*, *4*, 165–175. https://doi.org/10.1037/tps0000159

Herrmann, S. D., & Varnum, M. E. W. (2018b). Integrated social class identities improve academic performance, well-being, and workplace satisfaction. *Journal of Cross-Cultural Psychology*, *49*, 635–663. https://doi.org/10.1177/0022022118761107

Honicke, T., & Broadbent, J. (2016). The influence of academic self-efficacy on academic performance: A systematic review. *Educational Research Review*, *17*, 63–84. https://doi.org/10.1016/j.edurev.2015.11.002

Johns, M., Inzlicht, M., & Schmader, T. (2008). Stereotype threat and executive resource depletion: Examining the influence of emotion regulation. *Journal of Experimental Psychology: General*, *137*, 691–705. https://doi.org/10.1037/a0013834

Klein, K., & Boals, A. (2001). Expressive writing can increase working memory capacity. *Journal of Experimental Psychology: General*, *130*, 520–533. https://doi.org/10.1037/0096-3445.130.3.520

Lewin, K. (1951). *Field theory in social science.* (Edited by D. Cartwright.) New York: Harper.

Logel, C., & Cohen, G. L. (2012). The role of the self in physical health: Testing the effect of a values-affirmation intervention on weight loss. *Psychological Science*, *23*, 53–55. https://doi.org/10.1177/0956797611421936

Lubrano, A. (2003). *Limbo: Blue-collar roots, white-collar dreams.* New York, NY: Wiley.

McQueen, A., & Klein, W. M. P. (2006). Experimental manipulations of self-affirmation: A systematic review. *Self and Identity*, *5*, 289–354. https://doi.org/10.1080/15298860600805325

Miller, D. T., & Prentice, D. A. (2013). Psychological levers of behavior change. In E. Shafir (Ed.), *The behavioral foundations of public policy* (pp. 301-309). Princeton, NJ, US: Princeton University Press.

Miyake, A., Kost-Smith, L. E., Finkelstein, N. D., Pollock, S. J., Cohen, G. L., & Ito, T. A. (2010). Reducing the gender achievement gap in college science: A classroom study of values affirmation. *Science*, *330*, 1234–1237. https://doi.org/10.1126/science.1195996

Mok, A., Morris, M. W., Benet-Martínez, V., & Karakitapoğlu-Aygün, Z. (2007). Embracing American culture: Structures of social identity and social networks among first-

generation biculturals. *Journal of Cross-Cultural Psychology*, *38*, 629–635. https://doi.org/10.1177/0022022107305243

Na, J., Grossmann, I., Varnum, M. E. W., Kitayama, S., Gonzalez, R., & Nisbett, R. E. (2010). Cultural differences are not always reducible to individual differences. *Proceedings of the National Academy of Sciences*, *107*, 6192–6197. https://doi.org/10.1073/pnas.1001911107

Nguyen, A.-M. D., & Benet-Martínez, V. (2013). Biculturalism and adjustment: A meta-analysis. *Journal of Cross-Cultural Psychology*, *44*, 122–159. https://doi.org/10.1177/0022022111435097

Ostrove, J. M., & Long, S. M. (2007). Social class and belonging: Implications for college adjustment. *The Review of Higher Education*, *30*, 363–389. https://doi.org/10.1353/rhe.2007.0028

Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research*, *66*, 543–578. https://doi.org/10.3102/00346543066004543

Park, C. L. (2010). Making sense of the meaning literature: An integrative review of meaning making and its effects on adjustment to stressful life events. *Psychological Bulletin*, *136*, 257–301. https://doi.org/10.1037/a0018301

Pennebaker, J. W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological Science*, *8*, 162–166. https://doi.org/10.1111/j.1467-9280.1997.tb00403.x

Pennebaker, J. W., & Chung, C. K. (2007). *Expressive writing, emotional upheavals, and health.* In H. S. Friedman & R. C. Silver (Eds.), *Foundations of health psychology* (pp. 263–284). Oxford University Press.

Phillips, L. T., Stephens, N. M., Townsend, S. S. M., & Goudeau, S. (2020). Access is not enough: Cultural mismatch persists to limit first-generation students' opportunities for achievement throughout college. *Journal of Personality and Social Psychology.* Advance online publication. https://doi.org/10.1037/pspi0000234

Reardon, S. F. (2011). The widening academic achievement gap between the rich and the poor: New evidence and possible explanations. In R. Murnane & G. Duncan (Eds.), *Whither opportunity? Rising inequality and the uncertain life chances of low-income children* (pp. 91-116). New York, NY: Russell Sage Foundation Press.

Rokeach, M. (1973). *The nature of human values*. The Free Press; Collier MacMillan.

Ross, L., & Nisbett, R. E. (1991). *The person and the situation: Perspectives of social psychology.* Philadelphia: Temple University Press.

Saenz, V. B., Hurtado, S., Barrera, D., Wolf, D., & Yeung, F. (2007). First in my family: A profile of first-generation college students at four-year institutions since 1971. Los Angeles, CA: Higher Education Research Institute. Retrieved from https://www.heri.ucla.edu/PDFs/pubs/TFS/Special/Monographs/FirstInMyFamily.pdf

Schmeichel, B. J., & Vohs, K. (2009). Self-affirmation and self-control: Affirming core values counteracts ego depletion. *Journal of Personality and Social Psychology*, *96*, 770–782. https://doi.org/10.1037/a0014635

Schwartz, S. H., & Bilsky, W. (1987). Toward a universal psychological structure of human values. *Journal of Personality and Social Psychology*, *53*, 550–562. https://doi.org/10.1037/0022-3514.53.3.550

Shnabel, N., Purdie-Vaughns, V., Cook, J. E., Garcia, J., & Cohen, G. L. (2013). Demystifying values-affirmation interventions: Writing about social belonging is a key to buffering

against identity threat. *Personality and Social Psychology Bulletin, 39,* 663-676. https://doi.org/10.1177/0146167213480816

Sherman, D. K., Bunyan, D. P., Creswell, J. D., & Jaremka, L. M. (2009). Psychological vulnerability and stress: The effects of self-affirmation on sympathetic nervous system responses to naturalistic stressors. *Health Psychology,* 28, 554–562. https://doi.org/10.1037/a0014663

Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research*, *75*, 417–453. https://doi.org/10.3102/00346543075003417

Spencer, S. J., Steele, C. M., & Quinn, D. M. (1999). Stereotype threat and women's math performance. *Journal of Experimental Social Psychology*, *35*, 4–28. https://doi.org/10.1006/jesp.1998.1373

Steele, C. M. (1997). A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist*, *52*, 613–629. https://doi.org/10.1037/0003-066X.52.6.613

Steele, C. (2011). *Whistling Vivaldi: And other clues to how stereotypes affect us* (Norton paperback, 1. ed). Norton.

Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology*, *69*, 797–811. https://doi.org/10.1037/0022-3514.69.5.797

Steele, C. M., Spencer, S. J., & Aronson, J. (2002). Contending with group image: The psychology of stereotype and social identity threat. In M. P. Zanna (Ed.), *Advances in*

Experimental Social Psychology (Vol. 34, pp. 379–440). Elsevier. https://doi.org/10.1016/S0065-2601(02)80009-0

Stephens, N. M., Fryberg, S. A., Markus, H. R., Johnson, C. S., & Covarrubias, R. (2012). Unseen disadvantage: How American universities' focus on independence undermines the academic performance of first-generation college students. *Journal of Personality and Social Psychology*, *102*, 1178–1197. https://doi.org/10.1037/a0027143

Stephens, N. M., Markus, H. R., & Phillips, L. T. (2014). Social class culture cycles: How three gateway contexts shape selves and fuel inequality. *Annual Review of Psychology*, *65*, 611–634. https://doi.org/10.1146/annurev-psych-010213-115143

Stephens, N. M., Townsend, S. S. M., Markus, H. R., & Phillips, L. T. (2012). A cultural mismatch: Independent cultural norms produce greater increases in cortisol and more negative emotions among first-generation college students. *Journal of Experimental Social Psychology*, *48*, 1389–1393. https://doi.org/10.1016/j.jesp.2012.07.008

Stinson, D. A., Logel, C., Shepherd, S., & Zanna, M. P. (2011). Rewriting the self-fulfilling prophecy of social rejection: Self-affirmation improves relational security and social behavior up to 2 months later. *Psychological Science*, *22*, 1145–1149. https://doi.org/10.1177/0956797611417725

Sy, S. R., Fong, K., Carter, R., Boehme, J., & Alpert, A. (2011). Parent support and stress among first-generation and continuing-generation female students during the transition to college. *Journal of College Student Retention: Research, Theory & Practice*, *13*, 383–398. https://doi.org/10.2190/CS.13.3.g

Terenzini, P. T., Springer, L., Yaeger, P. M., Pascarella, E. T., & Nora, A. (1996). First-generation college students: Characteristics, experiences, and cognitive development. *Research in Higher Education*, *37*, 1–22. https://doi.org/10.1007/BF01680039

Tibbetts, Y., Harackiewicz, J. M., Canning, E. A., Boston, J. S., Priniski, S. J., & Hyde, J. S. (2016). Affirming independence: Exploring mechanisms underlying a values affirmation intervention for first-generation students. *Journal of Personality and Social Psychology*, *110*, 635–659. https://doi.org/10.1037/pspa0000049

Tibbetts, Y., Priniski, S. J., Hecht, C. A., Borman, G. D., & Harackiewicz, J. M. (2018). Different Institutions and Different Values: Exploring first-generation student fit at 2-year colleges. *Frontiers in Psychology*, *9*. https://doi.org/10.3389/fpsyg.2018.00502

Walton, G. M., & Cohen, G. L. (2007). A question of belonging: Race, social fit, and achievement. *Journal of Personality and Social Psychology*, *92*, 82–96. https://doi.org/10.1037/0022-3514.92.1.82

Walton, G. M., & Wilson, T. D. (2018). Wise interventions: Psychological remedies for social and personal problems. *Psychological Review*, *125*, 617–655. https://doi.org/10.1037/rev0000115

Warburton, E. C., Bugarin, R., & Nunez, A. M. (2001). *Bridging the gap: Academic preparation and postsecondary success of first-generation students (NCES 2001–153)*. Washington, DC: National Center for Education Statistics. Retrieved from http://nces.ed.gov/pubs2001/2001153.pdf

Table 1

Zero-Order Correlations and Descriptive Statistics for Major Variables in Study 1

Variable	1	2	3	4	5
1. Institutional match	—				
2. Belonging uncertainty	-.20***	—			
3. Academic confidence	.26***	-.30***	—		
4. High-school standardized test performance	-.03	-.19***	.10*	—	
5. Interdependent (minus independent) motives	-.14**	.16***	-.01	-.15**	—
N	451	451	451	443	460
M	5.43	3.85	4.69	0.00	-1.05
SD	1.19	1.69	1.40	1.00	1.17
Cronbach's α, Pearson's *r*	.79, .65	.78, .64			

Note. Correlations were computed using pairwise deletion. Inter-item correlations are only reported for two-item scales.

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 2

Frequencies and Percentages of Interdependent and Independent Themes by Condition in Study 2

Theme	Condition					
	Control		Standard VA		Combined VA	
	n	Percent	*n*	Percent	*n*	Percent
Interdependence and independence	0	0.00%	20	29.41%	39	49.37%
Independence only	0	0.00%	9	13.24%	1	1.27%
Interdependence only	1	1.37%	35	51.47%	38	48.10%
No interdependence or independence	72	98.63%	4	5.88%	1	1.27%

Table 3

Zero-Order Correlations and Descriptive Statistics for Major Variables in Study 2

Variable	1	2	3	4	5
1. Baseline performance	—				
2. Standardized test confidence	.14	—			
3. Distraction on test	-.10	-.15*	—		
4. Math test score	.28***	.29***	-.32***	—	
5. Institutional match	-.06	.20**	-.10	-.01	—
N	220	200	220	220	220
M	4.97	4.62	2.99	9.33	5.48
SD	2.84	1.37	1.52	2.85	1.28
Cronbach's α, Pearson's *r*		.72, .57	.89		.86, .76

Note. Correlations were computed using pairwise deletion. Inter-item correlations are only reported for two-item scales.

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 4

Effects of Treatment, Generational Status, Gender, and Baseline Performance on Institutional Match and Math Test Score

	Institutional Match			Math Test Score		
Predictor	β	*SE*	*p*	β	*SE*	*p*
Standard VA	0.04	0.21	.630	0.08	0.52	.369
Combined VA	0.12	0.20	.108	0.19	0.41	.007
Generational status	-0.45	0.28	< .001	-0.09	0.66	.412
Standard VA x Generational status	0.09	0.40	.314	-0.07	1.05	.502
Combined VA x Generational status	0.24	0.40	.010	-0.03	0.83	.752
Gender	0.04	0.26	.725	-0.28	0.58	.006
Standard VA x Gender	0.06	0.38	.464	0.04	0.98	.645
Combined VA x Gender	0.07	0.39	.434	0.02	0.77	.843
Baseline Performance	-0.08	0.08	.190	0.25	0.19	< .001

Note. Standard VA and Combined VA are dummy codes (with Control as the comparison group). Generational status is coded FG = +.5, CG = -.5; gender is coded female = +.5, male = -.5. Baseline performance is standardized.

Table 5

Mediation of the Combined VA Effect on Math Test Score via Standardized Test Confidence and Distraction on Test in Study 2

Regressions			
Predictor	β	*SE*	*p*
Standardized Test Confidence			
Standard VA	0.13	0.26	.146
Combined VA	0.23	0.23	.003
Generational status	-0.30	0.35	.016
Standard VA x Generational status	0.13	0.55	.255
Combined VA x Generational status	0.17	0.46	.085
Gender	-0.03	0.30	.812
Standard VA x Gender	-0.06	0.50	.535
Combined VA x Gender	0.02	0.42	.804
Baseline Performance	0.12	0.09	.078
Distraction on Test			
Standard VA	-0.08	0.28	.325
Combined VA	-0.16	0.27	.060
Generational status	0.17	0.42	.215
Standard VA x Generational status	-0.02	0.56	.829
Combined VA x Generational status	-0.09	0.54	.384
Gender	0.19	0.37	.111
Standard VA x Gender	-0.12	0.49	.167
Combined VA x Gender	-0.07	0.50	.497
Baseline Performance	-0.09	0.10	.186
Math Test Score			
Standard VA	0.03	0.47	.692
Combined VA	0.10	0.40	.133
Generational status	0.01	0.59	.958
Standard VA x Generational status	-0.10	0.94	.282
Combined VA x Generational status	-0.08	0.78	.308
Gender	-0.23	0.51	.011
Standard VA x Gender	0.03	0.89	.748
Combined VA x Gender	0.00	0.74	.961
Baseline Performance	0.21	0.19	.001
Standardized Test Confidence	0.20	0.12	.001
Distraction on Test	-0.23	0.10	< .001

Indirect Effects			
Indirect Effect	Estimate	Boot LLCI	Boot ULCI
Combined VA → Confidence → Math Test Score	0.27	0.073	0.645
Combined VA → Distraction → Math Test Score	0.22	0.005	0.551

Note. Confidence intervals are computed using a bootstrap sample. LLCI = lower level of the 95% bootstrap confidence interval; ULCI = upper level of the 95% bootstrap confidence interval.

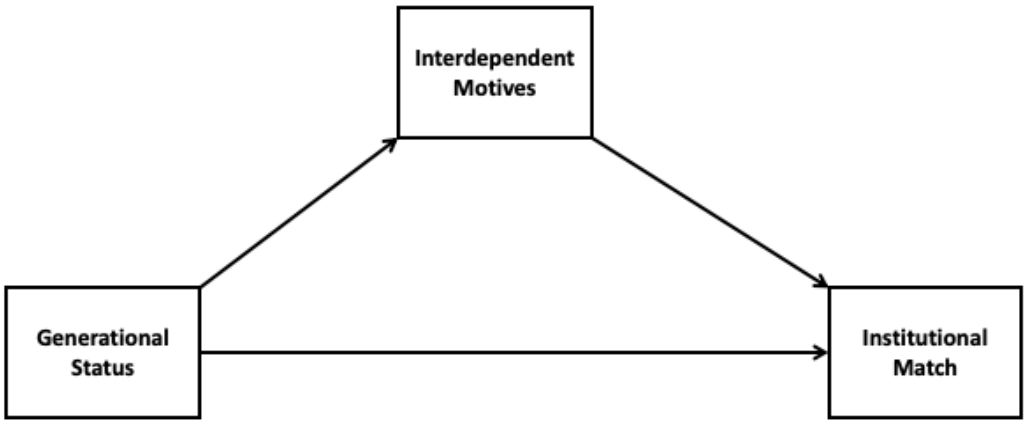

Figure 1. Conceptual mediation diagram for the generational status effect on institutional match via interdependent (minus independent) college motives.

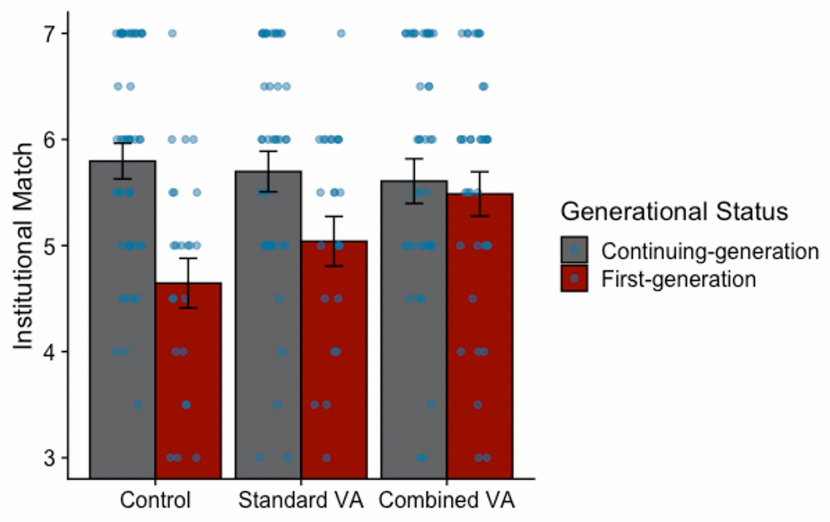

Figure 2. Treatment effects on institutional match as a function of generational status in Study 2. Points represent raw data, bars represent raw means, and error bars represent ±1 standard error of the mean. VA = values affirmation.

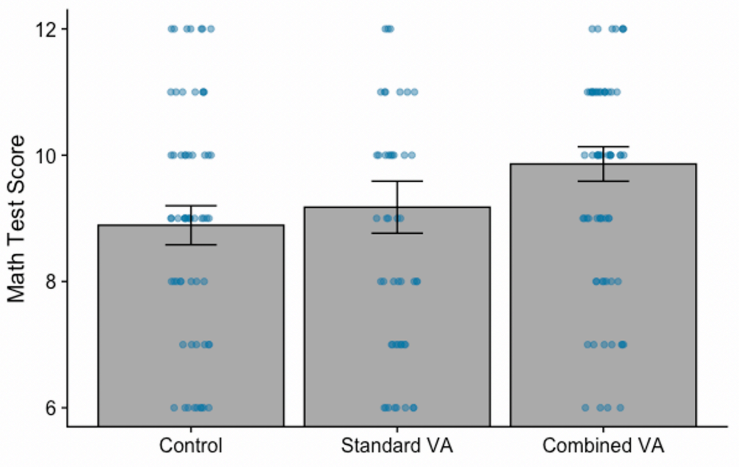

Figure 3. Treatment effects on math test score in Study 2. Points represent raw data, bars represent raw means, and error bars represent ±1 standard error of the mean. VA = values affirmation.

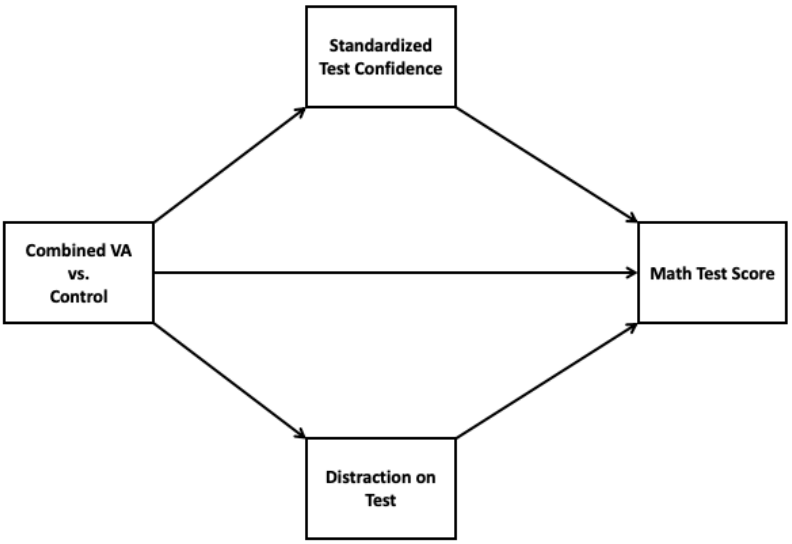

Figure 4. Conceptual diagram for the Combined VA effect on math test score via standardized test confidence and distraction on test. VA = values affirmation.

Appendix A: Writing Prompts

Control Writing Prompt

In this writing task you will be answering several questions about people's ideas and beliefs. **It is important to remember while you are answering these questions that there are no right or wrong answers.**

Please carefully read this list of personal values and think about each of the values. Then circle the two or three values that are LEAST important to you. Even if you feel that several of the values are not very important, please pick **only TWO or THREE** of them to circle.

The **least** important values to me are: (circle two or three)

Being Good at Art

Creativity

Relationships with Friends or Family

Independence

Learning and Gaining Knowledge

Athletic ability

Belonging to a Social Group
(such as your community, racial group, or school club)

Music

Career

Spiritual or Religious Values

Sense of Humor

Curiosity

Social Networking and/or Gaming

(Please turn the page)

Directions:

1. Look at the values you picked as **most** important to you.
2. Think about times when these values were or would be very important to you.
3. Describe why these values are important to you. Focus on your thoughts and feelings, and don't worry about spelling or grammar.

(Please turn the page; or if you need more space feel free to continue on reverse side)

Again, look at the values you picked as least important. List the top two reasons why **someone else** (like another student at your school or a person you've heard about) would pick these as their most important value:

1.

2.

Make a check mark to show how much you agree with each of the following statements:

1. In general, some people try to live up to these values.

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
____	____	____	____	____	____

2. These values are important to some people.

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
____	____	____	____	____	____

3. Some people care about these values.

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
____	____	____	____	____	____

Standard VA Writing Prompt

In this writing task you will be answering several questions about your ideas, your beliefs, and your life. **It is important to remember while you are answering these questions that there are no right or wrong answers.**

Please carefully read this list of personal values and think about each of the values. Then circle the two or three values that are MOST important to you. Even if you feel that many of the values are important, please pick **only TWO or THREE** of them to circle.

The **most** important values to me are: (circle two or three)

Being Good at Art

Creativity

Relationships with Friends or Family

Independence

Learning and Gaining Knowledge

Athletic ability

Belonging to a Social Group
(such as your community, racial group, or school club)

Music

Career

Spiritual or Religious Values

Sense of Humor

Curiosity

Social Networking and/or Gaming

(Please turn the page)

Directions:

1. Look at the values you picked as **most** important to you.
2. Think about times when these values were or would be very important to you.
3. Describe why these values are important to you. Focus on your thoughts and feelings, and don't worry about spelling or grammar.

(Please turn the page; or if you need more space feel free to continue on reverse side)

Again, look at the values you picked as most important. List the top two reasons why these values are important to you:

1.

2.

Make a check mark to show how much you agree with each of the following statements:

1. In general, I try to live up to these values.

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
____	____	____	____	____	____

2. These values are an important part of who I am.

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
____	____	____	____	____	____

3. I care about these values.

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
____	____	____	____	____	____

Combined VA Writing Prompt

In this writing task you will be answering several questions about your ideas, your beliefs, and your life. **It is important to remember while you are answering these questions that there are no right or wrong answers.**

Please carefully read this list of personal values and think about each of the values. Then circle the two or three values that are MOST important to you, **selecting at least one value from each column.** Even if you feel that many of the values are important, please pick **only TWO or THREE** of them to circle.

The **most** important values to me are: (circle two or three)

Column A	Column B
Relationships with Friends and Family	Independence
Social Networking and/or Gaming	Being Good at Art
Belonging to a Social Group	Learning and Gaining Knowledge
Spiritual or Religious Values	Curiosity

(Please turn the page)

Directions:

1. Look at the values you picked as **most** important to you.
2. Think about times when these values were or would be very important to you.
3. Describe why these values are important to you. Focus on your thoughts and feelings, and don't worry about spelling or grammar.

(Please turn the page; or if you need more space feel free to continue on reverse side)

Again, look at the values you picked as most important. List the top two reasons why these values are important to you:

1.

2.

Make a check mark to show how much you agree with each of the following statements:

1. In general, I try to live up to these values.

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
____	____	____	____	____	____

2. These values are an important part of who I am.

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
____	____	____	____	____	____

3. I care about these values.

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
____	____	____	____	____	____

Appendix B: Essay Coding Schemes

Independent Themes

Independence Coding Manual

Independence – thinking or acting for oneself; expresses autonomy in way that it is not controlled by others in matters of opinion, conduct, etc.

Coding Rubric

0	1
No independence	Expresses independence

Ways to get to a score of 1

1. The essay explicitly expresses the value of independence for the self
2. The essay mentions valuing an activity because it is done alone
3. Essay shows that the participant values their own autonomy (i.e. the ability to make their own decisions and have their own ideas/opinions).

Interdependent Themes

Interdependence Coding Manual

Interdependence – Expressing that one values others and their interdependence

Coding Rubric

0	1
No Interdependence	Expresses Interdependence

Ways to get to a score of 1

1. The essay explicitly expresses valuing an activity because it is done with others
2. The essay mentions feeling part of a group of people because of a certain value or while engaging in a certain activity
3. Any related thoughts on the subject of one's interdependence/belonging, such as being affiliated with or liked by others

Academic Themes

Academic Coding Manual

Academics and/or learning and gaining knowledge

0 = no reference to academics
1 = reference to academics is related to independence
2 = reference related to belonging
3 = reference related to both
4 = reference related to other

Note: Codes 1-4 were collapsed together to create a single dichotomous code.

Appendix C: Excerpts from Essays Integrating Independent and Interdependent Values

- "I have never been good at academics but one thing I know for sure is that I enjoy doing things that give me independence and pride like starting my own company. My dad is my life coach so sticking close to family while being independent is something I struck to achieve a perfect harmony in."
- **"**As an only mother, all her life my mother had to learn how to be a single, independent parent, raising a child alone. The idea of not having to rely on anyone is what I believe helped her succeed in this world, and it's been important for me to learn how to be independent too. As a first gen student, I want to get a higher education and obtain a career that will earn good money such that I can contribute back to my mother and my community. By getting a professional career, I want to show that as a Hispanic and colored individual we can succeed, no matter how hard it gets."
- "Having a good relationship with my friends/family is extremely important to me. They are always there for you with love and moral support. Independence is important because it allows you to branch out, explore, and be yourself. Having a good balance of being independent yet having close family/friends is what I will always have."
- "In order to lead a well-balanced, happy life, human beings must attain a certain level of contentedness. In order to achieve this, one must be both happy as an individual and happy with one's relationships. As an individual, I value my independence and desire to learn and gain knowledge… After fulfilling inner objectives of wellness, I look to my relationships with friends and family to attain contentedness in order to be fulfilled."